

Transforming Army Safety

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THE NEED TO TRANSFORM

The Army is a dynamic organization that must respond to the evolving 21st century security environment and the unfolding world stage. Indeed, the Army is undergoing a sweeping transformation to counter the emergence of asymmetric and unpredictable new threats, to adjust to rapid development of defense technology, and to meet the challenges of the Information Age¹.

The overarching goal of Army transformation is to be “Relevant and Ready.” To remain a potent instrument of national military strategy, the Army must be more agile, modular, and expeditionary, all within a mindset of joint operations. Additionally, it must convert to a network-centric organization that produces actionable knowledge for the warfighter. In pursuit of this end state, the Secretary of the Army stated that we will adapt new technologies, develop improved joint operating concepts, change organizational structures, and most importantly, build leaders, people, and a culture that are relevant to the future.

To these ends, “Relevant and Ready” includes significant improvements in caring for our most important assets. FM 1, *The Army*, establishes Soldiers as the centerpiece of our Army and the focus of transformation efforts.² FM 1 makes it clear that Army readiness begins with the readiness of the Soldier. The Army Campaign Plan elaborates on this, mandating the well being of Soldiers as the foundation of transformation.³

This guidance notwithstanding, the Army is up against a formidable foe that is insidiously attacking readiness and Soldier well being. It is an enemy from within, and it is in the form of preventable losses. Such losses of Soldiers and equipment decrease our readiness, degrade combat power, and make progress on Army transformation much more difficult.

Since 9/11, the Army experienced increases in accidental fatalities for four consecutive years. In FY04 alone, there were over a half million mishap injuries that required medical treatment, and the resulting lost or limited duty days caused the equivalent of six full brigades to be out of action the entire year. In

FY05, aircraft losses totaled more than a half billion dollars. All this occurred despite the challenge by the Secretary of Defense to reduce accidents by 50% from FY02 levels. The impact on readiness is clear; the call to transform Army safety has never been louder.

Our Cold War, garrison-based safety structure had done a commendable job over the years supporting the safety requirements of our industrial, scientific, and installation activities. However, it is not compatible with the demands of our modular, forward deployed, expeditionary force engaged in a global war on terror. The compliance paradigm of traditional safety is counterintuitive to the modern warfighter. Soldiers who embrace the Warrior Ethos learn to expect the unexpected, act from self confidence, and accept necessary risk. Hence, to be successful, any new approach to loss prevention has to recognize that *soldiering is the business of danger*. So, while Soldiers must not be risk averse, they can be smart about how they manage risk to preserve their combat power for the fight.

As the institution examined itself, there was a growing sense that legacy approaches to safety were not enough. The DoD Inspector General (DoD IG) independently concurred with this assessment. In a comprehensive study, the DoD IG concluded that the Army was still operating under a 1970's paradigm for safety, relying on lagging indicators, consequence management, and a compliance orientation. In order to better meet the new needs of the Army, the DoD IG suggested moving to a more proactive approach that stressed leading indicators and prevention.



DoD IG: Create processes on the left

Senior leaders saw the great need to do something different and set in motion the transformation of Army safety. The goals were two: 1) Operationalize safety to more effectively preserve combat power for the current conflicts; 2) Become integral to the Army of the future by aligning safety transformation with Army transformation. Spearheading this effort was the U.S. Army Safety Center, a field operating agency located at Ft. Rucker, Alabama, where the transformation team worked to revolutionize doctrine, strengthen the safety infrastructure, change communications, and create new loss prevention tools.

The Center, like much of the Army, has been transforming on the fly. Hence, changes do not occur in a clean, linear fashion but happen more or less simultaneously. Like much of the Army, the double duty of conducting daily operations while at the same time recasting them creates an unprecedented tempo. However, the Center truly has a passion for the Soldier, and the goodness of reducing loss has energized the organization. The sense of urgency meant that not everything under development worked optimally the first time. However, it was simply more important to sustain transformation by quickly fielding any promising initiative than it was to make sure every "i" was dotted before implementing something new. Paralysis by analysis or move out and adjust fires – given the dynamic environment of Army operations, the Center opted for the latter.

TRANSFORMING SAFETY DOCTRINE

Although a more proactive approach to loss prevention had been in the Army for a decade, its application remained compartmentalized. Some circles saw the 5-step risk management cycle as an addendum to safety practices and quite segmented in application. What was needed was a cultural change. The breakthrough occurred when the concept of risk management was linked to readiness. The new doctrine, called Composite Risk Management (CRM), states that a loss is a loss, regardless of the source. Tactical or accidental, on duty or off duty, military or

civilian – dead is dead, injured is injured, and any loss degrades readiness. The doctrine emphasizes that risk management should occur 24/7 because losses can occur at any time in any activity. CRM uses a holistic assessment of risks posed by the enemy, the environment, materiel, and human error, then applies controls to mitigate the aggregate risk. From the Soldier's viewpoint, CRM is simply "What can take me out today, and how can I reduce the odds of that happening?" The doctrine is a shift from an accident-centric to Soldier-centric approach, which aligns perfectly with the Army's thrust that the centerpiece of transformation is Soldier well being.



Composite Risk Management Model

TRANSFORMING THE INFRASTRUCTURE

The new doctrine of CRM expanded the perspective and role of the Army Safety Center. Responding to the additional requirements, the Secretary of the Army and Chief of Staff of the Army recast the unit in January 2005 as the Army Combat Readiness Center (CRC) and chartered it as the focal point for all Army loss. The CRC was directed to create new processes to collect, analyze, and distribute actionable knowledge about losses that affect combat readiness. The CRC abandoned its hierarchical structure and re-designed itself as a matrix organization with multi-level connectivity, where form and function are intertwined. Fully immersed in the information age, the CRC is reinventing itself as a knowledge center, "connecting the dots" on losses from disparate sources to

provide value added in the form of trends, predictions, and preventive actions. To these ends, the Center also created task forces for aviation, ground, and driving that attack the major sources of preventable loss. Senior decision makers recognized the relevance of this approach and approved the CRC's blueprint for a complete, Army-wide transformation of safety. They subsequently increased funding to bolster the CRC staff with 43 additional personnel and to fuel development of the proposed CRM initiatives.

At the macro level, the CRC energized the Army Safety Coordinating Panel to accomplish infrastructure changes to the Army's safety institution. The panel of senior representatives from all major commands studied the Army's needs for safety expertise and then successfully recommended to Army leadership a net increase of 106 personnel. Changes also included a realignment of many safety professionals with operational components like brigade combat teams in order to match vital resources to the units that have the most exposure to risk. Army planning and authorization documents were also updated to reflect these changes, establishing permanence for these upgrades.

In recognition that the training pipeline had to keep pace with the demands of a joint, expeditionary, modular force, the Center's training directorate strengthened its in-residence safety intern program. The rigorous 5-month curriculum is a blend of OSHA education presented by Texas A&M instructors and military adaptations delivered by CRC staff. The revamped program achieved best in class status in 2005, and sister services clamored to attend. As a result, the last three cycles have been fully joint, with contingents from the Navy, Marine Corps, and Air Force.

Gap analysis revealed that the CRC still could do a better job preparing risk management experts for operational, deployable forces. Hence, the Center staff designed a second training program to prepare prior service personnel with skills in CRM so they can assist commanders in the field with planning and mission execution.

TRANSFORMING COMMUNICATIONS

Concurrent with doctrine and infrastructure change, the Center is transforming its message and the media it uses. The importance of this effort cannot be overstated. As the knowledge center on Army loss, the CRC first and foremost must be effective in the design and delivery of CRM information. Powerful, accurate, and timely knowledge supplies the rationale for senior leader support, explains doctrine and policy, justifies institutional restructuring, and conveys to the field *why* and *how* to use CRM to enhance readiness.

The core message is that CRM enhances readiness, protects combat power, and fully prepares warfighters to confidently operate on the edge. To stay relevant and ready, CRM must be integrated in all that the Army does, to the point it permeates how Soldiers think and becomes a part of Army culture.

This theme formed the basis of an Army-wide media campaign entitled "Own the Edge." Linking composite risk management to warfighting capability, the message recognizes that today's Soldiers are on the edge: well equipped, highly trained, and poised for action. The last thing they want is a wimpy, geeky, "momma said" list of constraints. Instead, they need things that keep them strong and in the fight, ideas that mesh with why they joined the Army. If they perceive composite risk management as an enabler of success, they can use it to press ahead boldly and confidently because risk has been identified and mitigated. Armed, sharp, and in control, they are not just on the edge, they OWN THE EDGE!



To raise awareness and build a consensus for action among senior leaders, the CRC launched the Preliminary Loss Reports (PLRs), which notify every general officer of an Army loss shortly after an accidental fatality occurs. The simple 10-line reports give an initial recap of what happened and how to prevent it. The speed and reach of the Army's growing digital capability was the ideal medium to disseminate these notices to general officers. PLRs are now supplemented with a series of summaries which also go out electronically. By applying lessons learned on how to package the message, the new "*Got Risk?*" weekly series provides a palatable, timely, and useful picture of the latest losses and ways to prevent them. The aim for both products was to operationalize safety, that is, to place actionable knowledge – real problems and tangible solutions – in front of those leaders with the greatest impact on their formations.

To reach mid-level leaders and Soldiers, the CRC has worked hard to accept virtually every invitation to speak in person. The need for composite risk management can't adequately be conveyed by written directives. Live presentations make the case for CRM much more persuasively; indeed, with buy-in from Soldiers on the value of composite risk management, loss prevention is far more successful. The CRC continually refined its briefings to be powerful without being preachy. The content focused on the effects of loss on combat power, the hazards Soldiers face, and the Army's strategy to attack the problems. Communication experts also advised that the message was far more compelling when framed in personal terms, so briefings became more like dialogs, and the presentation incorporated several short, emotionally-charged videos that recounted selected tragedies vividly yet compassionately. Audience reaction repeatedly confirmed that this approach hit home. The Center's presentation became a key vehicle to transmit actionable knowledge on loss, because it was relevant and timely in its analysis, contained practical solutions, and was delivered in an engaging format.

TRANSFORMING THE TOOLS

New doctrine, stronger infrastructure, and improved communications paved the way for better CRM tools, techniques, and training. Analysis of preventable losses and also of the needs of a transformed Army revealed that products and services had to meet new requirements:

- Help for high tempo units
- Access to CRM tools by a mobile Army in deployments worldwide
- Flexible solutions for the commander
- Tools for all levels
- The need to stop solving the last accident (consequence management) and become more predictive
- The need for a comprehensive, systemic approach: applications to solve root causes as well as the symptoms

The last two issues represented the greatest change to the way safety does business, yet recent loss experiences surely provided the imperative for revolutionizing the approach. Moreover, traditional approaches have not proved to even fix the last accident. For example, mishaps behind the wheel accounted for nearly $\frac{3}{4}$ of the deaths in the past 2 years, the same proportion as reflected in the Army Safety Center's 1984 review⁴. Four behavioral factors – speed, fatigue, lack of seatbelts, and alcohol – were the main culprits in our driving losses in recent years, the same factors as two decades ago . . . and the two decades before that. Such data make it clear that traditional safety has been unable to provide permanent solutions for chronic issues but simply has supplied superficial, temporary fixes. Much like the arcade game Whack a Mole®, traditional safety hammers each problem as it pops up. Hitting it hard and fast yields immediate results, but the fix is also fleeting and the problem inevitably pops up again.

Effective solutions don't just focus on whacking the last accident. Long-term, permanent solutions that address the root causes of mishaps must also be in the mix. A truly systemic approach to loss prevention, then, addresses the problem from all aspects, from symptoms and proximal causes to the

underlying root causes, which often lie in the climate and culture of organizations.

Thus, the offensive on loss prevention has elements for the close fight and the deep fight. The plans consider the main effort (CRM in Army operations) and the flanks (CRM in off duty activities). To be “Relevant and Ready” and completely OWN THE EDGE, the Army is receiving a variety of CRM tools. As the CRC continues to develop effective solutions, it is applying Six Sigma concepts to ensure a comprehensive suite of products and services is available. Although the Army cannot be risk averse nor is zero defects a desirable goal, many other aspects of Six Sigma are applicable. The customer-focused, metric-oriented approach provides a framework to build usable tools, and Lean Six Sigma ideas achieve the best bang for the buck. The foundation of these efforts is the creation of actionable knowledge for the warfighter.

Knowledge Center

In its quest to be the knowledge center on Army loss, the CRC launched a monolithic project that automates all phases of data collection, storage, analysis, and distribution. The Center streamlined the loss reporting system and incorporated user-friendly features adapted from acclaimed consumer software. The center of gravity for the entire effort is a data warehouse on Army loss, which assembles accidental, combat, medical, and criminal databases into a common architecture. To tap into the warehouse, the CRC made a simple query tool for use by anyone who wants to research loss statistics and trends. Initial capability is with the accident database only, but spiral development will soon enable queries on all loss – this will help anyone connect the dots in any way they deem useful. The CRC is also linking to existing tactical display systems used by deployed forces to graphically depict the composite loss picture (accidental, medical, and tactical losses) in near real time. As a recent *Stand To!* article states, the goal of such endeavors is to enable Commanders and Soldiers to function with a “high level of shared situational understanding, delivered with the speed, accuracy, and timeliness

necessary to operate at their highest potential and conduct successful military operations.”⁵



Knowledge is power . . . combat power!

Predictive Capability

The CRC is also developing a predictive capability through advanced data mining software and a research consortium consisting of stakeholders in the data warehouse. When fully operational, analyses may produce profiles of at-risk units, predictions of unit, system, or individual failure, and pictures of vulnerabilities that we have previously been unable to see.

Two other projects will further enhance the Army's predictive capabilities on loss. As loss reporting becomes simpler and faster, the CRC is turning its attention to policy on mishap reporting and accountability for it. Much of the power to predict and prevent loss lies with near miss and minor mishap reporting. Since low-level incidents happen with much greater frequency than serious accidents, the reporting of near misses and minor mishaps can populate the database warehouse with far more information than before, enabling analysts to spot early trends, form actionable knowledge, and perhaps prevent “a big one” from happening. Of course, garbage in, garbage out. The process will only be as good as what's reported. The key is to convince the Army that near miss and minor mishap reporting is not a nuisance but of real value to enhancing readiness.

On another front, the CRC is facilitating field testing of digital data recorders. Downloads from these machines can identify equipment that is about to fail or operators who are not performing to standard. This enables corrective actions BEFORE catastrophe occurs.

Education and Training

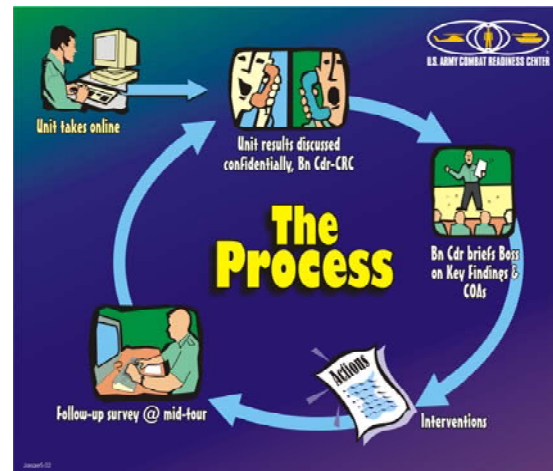
Global deployments, multiple time zones, and varying individual needs drove the CRC to establish a comprehensive, tailorable training system for anyone with access to the internet. The Combat Readiness University hosts over 1700 courses for asynchronous distance learning worldwide. Based on customer feedback, the Center completely overhauled its flagship offering, the Commander's Safety Course, and has done the same for other core curriculum. To assist in course administration and student tracking, the CRC installed a state-of-the-art learning management system. In its first 12 months of operation, the virtual university has had over 25,000 enrollments with over 21,000 course completions.

Addressing Root Causes

The logical next step was to introduce a pragmatic program that could get at root issues in our core units. The Army Readiness Assessment Program (ARAP) is a metric-based, leader-centric, action-oriented program that addresses how to improve an organization's safety and risk management climate. Adapted from the Navy, this battalion-level initiative is a closed-loop system of measurement, analysis, action, and evaluation of results. Individual, confidential assistance is available from the Combat Readiness Center throughout the ARAP cycle free of charge.

ARAP is the premier program for climate and cultural change as pertains to composite risk management. The program is managed at the battalion level, which is high enough to have resources to make an impact yet low enough to touch individual Soldiers and first-line supervisors. The unit assessment is a leading indicator of potential loss and enables battalion leadership to proactively change the root causes of loss: unclear policy, weak or

incorrect procedures, poor communications, and inappropriate attitudes. ARAP then puts practical solutions in the hands of the commander, to include the entire suite of CRC services and those available from the unit's higher headquarters.



The ARAP Cycle

Then, too, an improved mishap analysis and classification system can facilitate better understanding of the root causes of accidents. Historically, the tendency has been to simply blame the victim, using conclusions such as "lost control of the vehicle while speeding" or "violation of standards by flying below published minimums." However, this doesn't really get at WHY such actions occurred. There are always other circumstances that influence the accident prior to the actual mishap, such as unclear policies, lack of standards enforcement, unit norms, poor role models, or inadequate supervision. The Human Factors Analysis and Classification System (HFACS), developed in partnership with sister services, helps organize all human factors that were relevant in the accident. HFACS recognizes that nearly 90% of all mishaps are due to human error, but that these errors comprise a chain of causality far beyond the victim's immediate actions. Once this tool is fully phased in, we will have a better understanding of how unsafe acts stem from the underlying conditions and chain of events that precede mishaps.

Comprehensive Solutions

There are a host of initiatives that the CRC's aviation, ground, and driving task forces champion. While the programs in development are innovative and sweeping, most notable is the management approach that these teams are taking. The task forces foster partnerships with policy makers, funding sources, headquarters agencies, major commands, and test beds to forge consensus for solutions and establish a broad base of support for their implementation. The collaborations expand the breadth and depth of loss prevention programs to be truly systemic: doctrine, funding, staffing, safety engineering, regulation, education, training, and attitudinal/behavioral change efforts.

For example, the Army is attacking vehicle mishaps, our #1 problem, on both the symptom and root cause levels. The CRC's centralized accident investigation division expanded its role and now examines private vehicle accidents. Not only does their in-depth analysis shed light on why it happened and how to prevent its recurrence, but these investigations get Army-level visibility, which increases leader awareness and involvement. The CRC is working to make "Driving as a Life Skill" an official Warrior Task, on par with other fundamental soldiering skills like weapons handling and land navigation. Safety engineers have advised the acquisition community on improved occupant restraint systems for vehicles like the HMMWV and have evaluated anti-rollover kits. New requirements for Soldiers include a mix of schoolhouse and unit education on traffic safety, accident avoidance, and local hazards using both online and classroom delivery. Simulators and advanced hands-on training, both adapted from industry best practices, will also be available as the Army establishes driving centers of excellence. Capitalizing on the Army's transformation to a digital environment, the CRC fielded a web-based risk assessment tool for vehicle trip planning. User-defined task characteristics are mapped against mishap histories, and the system then suggests relevant controls to mitigate the risks of the specific activity. In virtually every training experience, there are also attitudinal components that address Soldier maturity, self

discipline, decision making, and behavioral issues. Thus, Soldiers are taught not only what to think but how to think. Initiatives will undergo proof-of-concept testing before widespread implementation, and the entire solution set will be assessed on for its outcomes and its return on investment . . . Six Sigma ideas in action.

TRANSFORMING THE FUTURE

Doctrine, infrastructure, communications, and tools have all changed significantly, and a cultural shift has begun. The "before/after" chart below summarizes the metamorphosis thus far.

Old Paradigm

Safety (accidents)
Safety Center
Rule oriented
Compliance
Consequence management
Lagging indicators
Reactive
Do and Don't
Manual
Fix symptoms
Safety as an add on

New Paradigm

CRM (loss is loss)
Combat Readiness Center
Readiness oriented
Prediction
Prevention
Leading indicators
Proactive
Actionable knowledge
Digital
Solve root causes
CRM integrated into operations

In the journey to transform Army safety, we have come a long way. What are the reasons for the progress to date?

1. Alignment with the strategic goals of Army transformation, both in form and function.
2. New doctrine that meets the needs of an expeditionary, modular Army.
3. Compelling messages and persuasive media that articulated the need for better loss prevention approaches to enhance readiness.
4. Constant dialog with senior leaders to build consensus for change, support for funding, and momentum for programs.
5. A more flexible, responsive, and operationally-oriented infrastructure.
6. Leveraging brain power and pooling resources via collaborative efforts on initiatives.
7. Policy and doctrine threaded throughout program establishment: funding, oversight, execution, evaluation.

Great strides, to be sure, and unquestionably the Army's loss experiences will soon improve dramatically. Nevertheless, as the DoD IG data indicate, much of the progress described above has yet to take root at the middle and lower levels. What, then, is next?

Senior leaders in the Army value the CRC's efforts and continue to look to the organization for innovative ideas to preserve combat power. However, they also realize that to achieve cultural change and produce better results in loss prevention, commanders and Soldiers must get more active in composite risk management. Therefore, the Army's senior leadership has mapped out the next steps of the transformation journey:

- **Leader involvement.** New tools are ready, and with digital connectivity, there are easily available. Time, money, access, and relevance are no longer obstacles. Hence, the expectation is that if you are a leader and you have risk of losses, you will get involved.
- **Results.** It's time to reduce the losses. The doctrine, people, training, and tools the Army has provided will be effective if used as intended. Preventable losses MUST decline. The Secretary of Defense has challenged it, Army senior leaders expect it, our Soldiers deserve it, and readiness demands it.
- **Accountability.** What gets measured gets managed. While no one can count the accident that didn't happen, we CAN track the level of reporting and identify organizations who need to do a better job. Additionally, under the auspices of the officer and NCO rating systems, annual performance objectives for safety will now be included – an institutional initiative to drive cultural change. Finally, among commanders there is growing impetus to formally discipline those who willfully engage in reckless behavior, to include discipline for leaders who fail to correct it.
- **Personal engagement.** Cultural change is complete when individual beliefs, values, and attitudes change. Commanders will focus on themselves and their leaders to

be better role models for CRM. Leaders will also get back to more one-on-one interaction, with more personal knowledge of their Soldiers' lifestyles; the notion that off-duty time is of a wholly personal nature is also fading. Leaders will also work to build Soldier self-discipline so that they are more apt to do the right thing even when no one's watching.

- **Joint mindset.** Interaction with sister services will continue to rise as we work on common problems. We will not only save money and time as we leverage each other's research and development, there is strength in a unified approach. Areas ripe for joint work are 1) common data reporting and analysis, which HFACS makes possible; 2) ARAP, which is now present in various forms across DoD; and 3) driving programs.

As long as the world stage continues to change, as long as the Army continues to adapt to changing national security requirements, the transformation of safety will continue. We will remain relentless in building our capability to assist commanders in applying composite risk management and in meeting Soldiers' needs to be "Relevant and Ready."

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